

Claims

1. A simple process for preparation of synergistic hypoglycemic foods and formulations thereof of high textual and sensory quality, useful as snacks, wholesome or supplementary foods, especially to the Type II diabetics, said process comprises steps of:
 - a. spraying about 2 - 6% (volume/weight) water into cereals,
 - b. tempering or resting the sprayed cereals for time duration ranging between 5 - 15 min,
 - c. scouring or decortication the tempered or rested to about 2 - 4% degree of decortication,
 - d. toasting the decorticated cereals optionally along with legumes, soy dhal, spice and condiments individually by contact heat at about 60 – 80°C for time duration ranging between 10 - 30 min to obtain cereals with golden brown color,
 - e. lending the toasted cereals optionally along with legumes, soy dhal, spices, condiments, and fenugreek seeds to obtain hypoglycemic blend,
 - f. pulverizing dried *Garcinia combogia* rinds along with hypoglycemic blend into grits of about 350 microns or lesser particle size to obtain pulverized mixture,
 - g. blending the pulverized mixture with skimmed milk powder, vegetable oil, amla powder to obtain blended product,
 - h. fortification of blended product with vitamin and mineral premix to obtain fortified product,
 - i. homogenizing the fortified product with conventional food material to obtain hypoglycemic foods and formulations thereof, useful as snacks, wholesome or supplementary foods, especially to the Type II diabetics.
2. A process as claimed in claim 1, scouring of cereals helps separate the outermost layer of the seed coat.
3. A process as claimed in claim 1, wherein toasting of the scored cereals help develops aroma.
4. A process as claimed in claim 1 wherein the formulations shows concentration of carbohydrates ranging between 50 - 60 g%, protein of concentration ranging between 12 - 17 g%, lipids of concentration ranging between 4 - 9 g%, dietary fiber, vitamins, and minerals of concentration ranging between 12 - 20 g%.

5. The process as claimed in claim 1, wherein, the ready-to-cook formulation could be further processed by extrusion cooking, roller drying, spray drying or by such other means to prepare ready-to-eat products that serve as convenience foods to the healthy as well as diabetics.
- 5 6. A process as claimed in claim 1, wherein, concentration of toasted cereals is ranging between 50 - 60%, concentration of toasted legumes is ranging between 6-12%, concentration of soy is ranging between 7 - 15%, concentration of fenugreek is ranging between 2-6%, concentration of spice mix is ranging between 3 - 7%, concentration of amla fruit pulp is ranging between 0.5 - 2%,
10 concentration of *Garcinia combogia* rinds is ranging between 1.5 to 3%, concentration of dry skimmed milk is ranging between 3 - 6%, concentration of edible oil is ranging between 2 - 6%, and concentration of vitamin and mineral premix is ranging between 1-3%.
7. A process as claimed in claim 1, wherein, the formulation retains its
15 hypoglycemic characteristics when consumed with normal food adjuncts.
8. A process as claimed in claims, 1 - 7, wherein, the ready-to-eat extruded food could be prepared in the form of grits, flakes, rolls, sticks, whereas the roller dried and spray dried foods could be granulated, and such products could be coated with edible fruit and vegetable powders, flavours and such other quality
20 improvers to enhance their sensory qualities without affecting the blood glucose attenuation characteristics.
9. A process for preparation of foods with hypoglycemic characteristics useful as a wholesome food or food supplements especially for diabetics, substantially as here in described with reference to the examples.
- 25 10. A process as claimed in claim 1, wherein the cereals are decorticated using cereal scourer, or rice huller, or grain pearler.
11. A process as claimed in claim 1, wherein toasting is in a grain roaster, or hot air cereal dryer, or any other food toasting equipment or machinery including IR heater.
- 30 12. A process as claimed in claim 1, wherein premix along with pulverized product, with the hypoglycemic blend, wheat or other legumes as carrier, in such a proportion, that, 100 g of the food containing 1 - 3g of the premix, meets 100% of their requirements as per recommended dietary allowance,

13. A process as claimed in claim 1, wherein pulverizing in a hammer mill or such other type cereal mills.
14. A process as claimed in claim 1, wherein the premix comprises pharmaceutical grade vitamins A, D, B1, B2, B6, B12, B6, C, E, and minerals comprising chromium, selenium, zinc, biotin, pantothenic, calcium, magnesium, iron, manganese, and copper.
15. A process as claimed in claim 1, wherein equilibrating the ready-to-cook formulations to 14 - 20% moisture levels, and extruding in a single or twin screw extrusion cooker maintained at 150 - 200 rpm and 120 - 150°C temperature or alternately mixing the ready-to-cook formulations with potable water with 10 - 15% (w/v) solid contents, heating to boiling, homogenizing and roller drying or spray drying the slurry.
16. A process as claimed in claim 1, wherein, the ready-to-cook and ready-to-eat foods exhibit moderate blood glucose response with 55 - 75 glycemic index values irrespective of the method of cooking and form of consumption, against white bread as standard with GI value 100 and could be labeled as hypoglycemic foods.
17. A process as claimed in claim 1, wherein, the ready-to-cook formulations permits to prepare a wide range of conventional foods to meet the taste and palate of the populations of different regions and age group and yet retain their hypoglycemic characteristics.
18. A process as claimed in claim 1, wherein the said process can be used at both residential and commercial levels.
19. Hypoglycemic foods and formulations product of composition with concentration of toasted cereals is ranging between 50 - 60%, concentration of toasted legumes is ranging between 6-12%, concentration of soy is ranging between 7 - 15%, concentration of fenugreek is ranging between 2-6%, concentration of spice mix is ranging between 3 - 7%, concentration of amla fruit pulp is ranging between 0.5 - 2%, concentration of *Garcinia combogia* rinds is ranging between 1.5 to 3%, concentration of dry skimmed milk is ranging between 3 - 6%, concentration of edible oil is ranging between 2 - 6%, and concentration of vitamin and mineral premix is ranging between 1-3%.
20. The hypoglycemic food as claimed in claim 19, wherein the said food shows moisture level of 12-18%.

21. The hypoglycemic food as claimed in claim 19, wherein the food is in both ready-to-cook and ready-to-eat forms.
22. The hypoglycemic food as claimed in claim 19, wherein the said food shows flexible composition of cereals, and dietary fibers, and legumes.
- 5 23. The hypoglycemic food as claimed in claim 19, wherein formulations shows concentration of carbohydrates ranging between 50 - 60 g%, protein of concentration ranging between 12 - 17 g%, lipids of concentration ranging between 4 - 9 g%, dietary fiber, vitamins, and minerals of concentration ranging between 12 - 20 g%.
- 10 24. The hypoglycemic food as claimed in claim 19, wherein the spice and condiments are the source of soluble fiber with ratio of galactose and mannose of about 1:1.
25. The hypoglycemic food as claimed in claim 19, wherein the spice mix enhances sensory attributes.
26. The hypoglycemic food as claimed in claim 19, wherein constituents of the food
15 synergizes each other to provide soluble and insoluble fiber in desirable ratio.
27. The hypoglycemic food as claimed in claim 19, wherein the food is non-toxic and nutritious.
28. The hypoglycemic food as claimed in claim 19, wherein the food shows pre- and pro-biotics, anti-carcinogenic, immunogenic, and anti-obese characteristics.
- 20 29. The hypoglycemic food as claimed in claim 19, wherein the hypoglycemic activity is contributed by amla and fenugreek.